

Appendix 5G

OU-5 South WRA ProUCL Software Output Data

Table 5-5 ProUCL outputs

ProUCL outputs: 0-0.5 and 0.5-3 ft bgs depth comparison

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 10:54:11 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Copper (MG/KG) (0-0.5)

Sample 2 Data: Copper (MG/KG) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	0	0
Number of Detect Data	35	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	35	9.6
Maximum Detect	3200	3100
Mean of Detects	639.7	618.4
Median of Detects	110	91
SD of Detects	838.6	834.5
KM Mean	639.7	618.4
KM SD	838.6	834.5

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value	0.523
Lower Critical z (0.025)	-1.96
Upper Critical z (0.975)	1.96
P-Value	0.601

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 11:06:37 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Mercury (MG/KG) (0-0.5)

Sample 2 Data: Mercury (MG/KG) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	14	15
Number of Detect Data	21	20
Minimum Non-Detect	0.012	0.012
Maximum Non-Detect	0.013	0.013
Percent Non-detects	40.00%	42.86%
Minimum Detect	0.013	0.013
Maximum Detect	0.37	0.32
Mean of Detects	0.0917	0.0973
Median of Detects	0.044	0.0825
SD of Detects	0.0976	0.0901
KM Mean	0.0598	0.0607
KM SD	0.0835	0.0787

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value	0.0183
Lower Critical z (0.025)	-1.96
Upper Critical z (0.975)	1.96
P-Value	0.985

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 11:08:06 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Molybdenum (MG/KG) (0-0.5)

Sample 2 Data: Molybdenum (MG/KG) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	2	3
Number of Detect Data	33	32
Minimum Non-Detect	0.52	0.52
Maximum Non-Detect	0.54	0.52
Percent Non-detects	5.71%	8.57%
Minimum Detect	0.52	0.51
Maximum Detect	24	22
Mean of Detects	6.153	5.295
Median of Detects	1.6	1.45
SD of Detects	7.257	6.494
KM Mean	5.831	4.885
KM SD	7.061	6.257

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value	0.276
Lower Critical z (0.025)	-1.96
Upper Critical z (0.975)	1.96
P-Value	0.782

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 11:19:21 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Selenium (MG/KG) (0-0.5)

Sample 2 Data: Selenium (MG/KG) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	0	0
Number of Detect Data	35	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.44	0.53
Maximum Detect	9.1	8.5
Mean of Detects	2.648	2.433
Median of Detects	1.8	1.6
SD of Detects	2.003	1.715
KM Mean	2.648	2.433
KM SD	2.003	1.715

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.00587
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.995

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 11:36:38 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Uranium (MG/KG) (0-0.5)

Sample 2 Data: Uranium (MG/KG) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	0	0
Number of Detect Data	35	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.94	0.95
Maximum Detect	19	14
Mean of Detects	3.695	3.641
Median of Detects	1.7	1.8
SD of Detects	4.559	3.701
KM Mean	3.695	3.641
KM SD	4.559	3.701

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.534
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.593

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.17/3/2020 8:17:57 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Radium-226 (PCI/G) (0-0.5)

Sample 2 Data: Radium-226 (PCI/G) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	0	0
Number of Detect Data	35	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.816	0.905
Maximum Detect	5.52	8.32
Mean of Detects	1.809	1.789
Median of Detects	1.41	1.39
SD of Detects	0.99	1.287
KM Mean	1.809	1.789
KM SD	0.99	1.287

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value	0.00587
Lower Critical z (0.025)	-1.96
Upper Critical z (0.975)	1.96
P-Value	0.995

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.17/3/2020 8:18:56 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Radium-228 (PCI/G) (0-0.5)

Sample 2 Data: Radium-228 (PCI/G) (0.5-3)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	35
Number of Non-Detects	0	0
Number of Detect Data	35	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.803	0.576
Maximum Detect	3.29	2.85
Mean of Detects	1.665	1.49
Median of Detects	1.59	1.4
SD of Detects	0.473	0.503
KM Mean	1.665	1.49
KM SD	0.473	0.503

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value	1.451
Lower Critical z (0.025)	-1.96
Upper Critical z (0.975)	1.96
P-Value	0.147

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

ProUCL outputs: 0-3 and 3-6 ft bgs depth comparison

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 12:05:40 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Copper (MG/KG) (0-3)

Sample 2 Data: Copper (MG/KG) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	0	0
Number of Detect Data	70	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	9.6	12
Maximum Detect	3200	3200
Mean of Detects	629.1	662.2
Median of Detects	105	80
SD of Detects	830.5	1001
KM Mean	629.1	662.2
KM SD	830.5	1001

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value 0.455
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.649

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 12:12:10 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Mercury (MG/KG) (0-3)

Sample 2 Data: Mercury (MG/KG) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	29	13
Number of Detect Data	41	22
Minimum Non-Detect	0.012	0.012
Maximum Non-Detect	0.013	0.013
Percent Non-detects	41.43%	37.14%
Minimum Detect	0.013	0.013
Maximum Detect	0.37	0.44
Mean of Detects	0.0944	0.0985
Median of Detects	0.062	0.05
SD of Detects	0.0929	0.12
KM Mean	0.0603	0.0664
KM SD	0.0811	0.102

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.39
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.697

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 12:13:18 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Molybdenum (MG/KG) (0-3)

Sample 2 Data: Molybdenum (MG/KG) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	5	2
Number of Detect Data	65	33
Minimum Non-Detect	0.52	0.51
Maximum Non-Detect	0.54	0.52
Percent Non-detects	7.14%	5.71%
Minimum Detect	0.51	0.56
Maximum Detect	24	24
Mean of Detects	5.73	5.669
Median of Detects	1.6	1.7
SD of Detects	6.852	7.159
KM Mean	5.358	5.374
KM SD	6.688	6.95

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.18
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.857

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 12:18:43 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Selenium (MG/KG) (0-3)

Sample 2 Data: Selenium (MG/KG) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	0	0
Number of Detect Data	70	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.44	0.59
Maximum Detect	9.1	10
Mean of Detects	2.54	2.539
Median of Detects	1.75	1.6
SD of Detects	1.854	2.087
KM Mean	2.54	2.539
KM SD	1.854	2.087

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.0204
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.984

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 12:27:32 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Uranium (MG/KG) (0-3)

Sample 2 Data: Uranium (MG/KG) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	0	0
Number of Detect Data	70	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.94	0.92
Maximum Detect	19	19
Mean of Detects	3.668	3.818
Median of Detects	1.75	2.1
SD of Detects	4.122	4.162
KM Mean	3.668	3.818
KM SD	4.122	4.162

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.707
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.48

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.17/3/2020 8:19:59 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Radium-226 (PCI/G) (0-3)

Sample 2 Data: Radium-226 (PCI/G) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	0	1
Number of Detect Data	70	34
Minimum Non-Detect	N/A	0.581
Maximum Non-Detect	N/A	0.581
Percent Non-detects	0.00%	2.86%
Minimum Detect	0.816	1
Maximum Detect	8.32	9.92
Mean of Detects	1.799	2.077
Median of Detects	1.395	1.5
SD of Detects	1.14	1.632
KM Mean	1.799	2.035
KM SD	1.14	1.604

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -1.026
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.305

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.17/3/2020 8:21:16 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Radium-228 (PCI/G) (0-3)

Sample 2 Data: Radium-228 (PCI/G) (3-6)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	70	35
Number of Non-Detects	0	0
Number of Detect Data	70	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.576	0.72
Maximum Detect	3.29	2.73
Mean of Detects	1.577	1.609
Median of Detects	1.505	1.6
SD of Detects	0.493	0.513
KM Mean	1.577	1.609
KM SD	0.493	0.513

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.435
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.664

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

ProUCL outputs: 0-6 and 6-15 ft bgs depth comparison

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 1:04:58 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Copper (MG/KG) (0-6)

Sample 2 Data: Copper (MG/KG) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	0	0
Number of Detect Data	105	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	9.6	24
Maximum Detect	3200	3000
Mean of Detects	640.1	734.1
Median of Detects	100	150
SD of Detects	886.2	972.8
KM Mean	640.1	734.1
KM SD	886.2	972.8

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.421
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.674

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 1:13:00 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Mercury (MG/KG) (0-6)

Sample 2 Data: Mercury (MG/KG) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	42	11
Number of Detect Data	63	24
Minimum Non-Detect	0.012	0.012
Maximum Non-Detect	0.013	0.013
Percent Non-detects	40.00%	31.43%
Minimum Detect	0.013	0.013
Maximum Detect	0.44	2.5
Mean of Detects	0.0958	0.179
Median of Detects	0.051	0.054
SD of Detects	0.102	0.5
KM Mean	0.0623	0.127
KM SD	0.0886	0.412

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.972
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.331

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 1:14:00 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Molybdenum (MG/KG) (0-6)

Sample 2 Data: Molybdenum (MG/KG) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	7	1
Number of Detect Data	98	34
Minimum Non-Detect	0.51	0.53
Maximum Non-Detect	0.54	0.53
Percent Non-detects	6.67%	2.86%
Minimum Detect	0.51	0.53
Maximum Detect	24	36
Mean of Detects	5.71	6.963
Median of Detects	1.6	1.85
SD of Detects	6.92	8.988
KM Mean	5.363	6.779
KM SD	6.776	8.793

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -0.912
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.362

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 1:18:25 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Selenium (MG/KG) (0-6)

Sample 2 Data: Selenium (MG/KG) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	0	0
Number of Detect Data	105	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.44	0.79
Maximum Detect	10	7.8
Mean of Detects	2.54	2.72
Median of Detects	1.7	1.6
SD of Detects	1.925	1.884
KM Mean	2.54	2.72
KM SD	1.925	1.884

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -1.201
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.23

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.16/29/2020 1:28:56 PM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Uranium (MG/KG) (0-6)

Sample 2 Data: Uranium (MG/KG) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	0	0
Number of Detect Data	105	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.92	1.1
Maximum Detect	19	21
Mean of Detects	3.718	4.111
Median of Detects	1.9	2.6
SD of Detects	4.116	4.374
KM Mean	3.718	4.111
KM SD	4.116	4.374

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -1.388
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.165

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.17/3/2020 8:22:11 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Radium-226 (PCI/G) (0-6)

Sample 2 Data: Radium-226 (PCI/G) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	1	0
Number of Detect Data	104	35
Minimum Non-Detect	0.581	N/A
Maximum Non-Detect	0.581	N/A
Percent Non-detects	0.95%	0.00%
Minimum Detect	0.816	0.984
Maximum Detect	9.92	7.35
Mean of Detects	1.89	1.966
Median of Detects	1.42	1.64
SD of Detects	1.319	1.132
KM Mean	1.878	1.966
KM SD	1.313	1.132

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value -1.634
Lower Critical z (0.025) -1.96
Upper Critical z (0.975) 1.96
P-Value 0.102

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)

Gehan Sample 1 vs Sample 2 Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.17/3/2020 8:23:48 AM
From File 200623 OU-5 ProUCL input.xls
Full Precision OFF
Confidence Coefficient 95%
Selected Null Hypothesis Sample 1 Mean/Median = Sample 2 Mean/Median (Two Sided Alternative)
Alternative Hypothesis Sample 1 Mean/Median \neq Sample 2 Mean/Median

Sample 1 Data: Radium-228 (PCI/G) (0-6)

Sample 2 Data: Radium-228 (PCI/G) (6-15)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	105	35
Number of Non-Detects	0	0
Number of Detect Data	105	35
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.576	0.919
Maximum Detect	3.29	3.43
Mean of Detects	1.588	1.607
Median of Detects	1.54	1.6
SD of Detects	0.498	0.482
KM Mean	1.588	1.607
KM SD	0.498	0.482

Sample 1 vs Sample 2 Gehan Test

H0: Mean of Sample 1 = Mean of background

Gehan z Test Value	-0.132
Lower Critical z (0.025)	-1.96
Upper Critical z (0.975)	1.96
P-Value	0.895

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Sample 1 = Sample 2

P-Value \geq alpha (0.05)